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ABSTRACT

This paper reports on a usually unrecognized potential benefit of measurement instruments designed for research in instruction: the effectiveness of these instruments when used as instructional procedures. Two studies were involved in the development of this concept. In the first study, an extensive instrument was designed to measure changes in six variables considered indicative of improvement in skills and qualities in narrative writing. The instrument was used to measure the effectiveness of a self-instructional program which employed a number of instructional strategies. The second study focused on one of the instructional strategies: task-related feedback, or information on performance that is directly related to specific behaviors identified by means of a task analysis of the performance of narrative writing. The measurement instrument was simplified and transformed into a feedback system used by students and teachers. Findings supported the idea that task-related feedback could result in desirable changes. The implication of the study was that the use of the feedback/measurement system, by itself, could be an effective instructional procedure. (Author/LJR)

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The Instructional Use of Measurement Instruments Designed for Research

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The Instructional Use of Measurement Instruments
Designed for Research

ABSTRACT

Researchers in education expend much time and effort in deciding upon variables to measure, developing measurement instruments, and testing their validity and reliability. A potential benefit of those instruments is in their use as instructional procedures. Two investigators, working on instructional problems involved in the improvement of narrative writing by secondary and elementary students, discovered the benefit to their own area. One investigator developed an elaborate, precise instrument for measuring six positive changes indicative of improvement in narrative writing. The second investigator adapted the instrument as a feedback system. The findings of both studies lend support to the idea that the providing of specific, positive, task-related feedback (or measurement) is, in itself, an effective instructional procedure.

The Instructional Use of Measurement

Instruments Designed for Research

This paper reports on a widely unrecognized, potential benefit of measurement instruments designed for research in instruction: the effectiveness of these instruments when used as instructional procedures. This benefit was an accidental discovery made by two investigators working on related problems (involved in the development and testing of instructional strategies for improving narrative writing by elementary and secondary school students). In one study, a rather extensive instrument was designed to measure changes in six variables considered indicative of improvement in skills and qualities in narrative writing. The instrument was used to measure the effectiveness of a self-instructional program which employed a number of instructional strategies. The second study focused on one of the instructional strategies, task-related feedback; i.e., information on performance that is directly related to specific behaviors identified by means of a task analysis of the performance of narrative writing. For that study, the measurement instrument was simplified and transformed into a feedback system, used by students and teachers. Findings lent support to the idea that task-related feedback could result in desirable changes. The implication of the study was that the use of the feedback/measurement system, by itself, could be an effective instructional procedure.

A narrative-summary of some of the elements of the two studies will be provided to explain the points made above. Though the two studies were very limited (in terms (a) of numbers of subjects and

(b) of scope, i.e., only one type of writing and only a few qualities of writing), the implications seem important to research in instruction in any area. The implications also suggest a way that teachers can take advantage of the work of researchers in improving instruction: by using the measurement instruments as a basis for (a) identifying meaningful and measurable objectives and (b) by providing feedback directly related to those objectives.

The Measurement Problem in Writing.

Until recently, and in only a few instances (Buxton, 1958; Harris, 1962; Odell, 1970; Lamberg, 1974; Wolter, 1975), there has been no attempt to design specific, objective measures of positive behaviors in writing. A reading of the major review and critique of research in writing (Braddock, Lloyd-Jones, & Schoer, 1963), as well as more recent reviews such as Sherwin (1969), leads one to the following conclusions about most of the research conducted: (1) In the past, much effort was devoted to the elimination of negative behaviors; i.e., errors in spelling, punctuation, sentence structure, and usage. Specific measures were used, but (a) most teachers consider such errors of little importance compared to other skills and qualities in writing, and (b) studies found that instructional procedures aimed at eliminating errors were lacking in effectiveness.

(2) Studies that focused on improvement in or acquisition of desirable qualities, typically, used instruments that involved subjective, norm-referenced evaluations of hard-to-define, and often undefined,

qualities, e.g., significance, sincerity, critical thinking. (3) Few studies were specifically concerned with measurement and few showed, or reported any, consideration of measurement; most that did were concerned with determining (and/or increasing) the reliability of subjective measures. (4) Few studies were concerned with (and therefore did not measure) basic skills and qualities, e.g., fluency in writing words, fluency in writing complete sentences, unity, completeness. These qualities are more readily defined and, perhaps, prerequisitic to the sophisticated "adult standards" more commonly used to evaluate writing, like those noted in (2) above.

It should be noted that the trends in past research reflect the trends in classroom practice. The elimination of errors has typically received the greatest amount of attention; feedback when specific has been usually negative; i.e., noting errors; and most feedback has been negative; positive feedback and positive evaluations have been,generally, subjective (Lamberg, 1974; Wolter, 1975).

Students' writing, typically, has been evaluated by means of norm-referenced, subjective measures (how well the students' writing compares with their classmates' in terms of often undefined qualities) rather than in terms of changes in specific behaviors measured by criterion-referenced instruments.

An Attempt to Identify and Measure Specific, Positive Changes.

An attempt was made to design and test a measurement instrument that would provide objective measures of positive changes in specific behaviors considered indicative of improvement in the short, auto-biographical narrative (Lamberg, 1974). The instrument was used to

test the effectiveness, and to aid in the development of, a self-instructional program that employed a number of instructional strategies: (1) task-analysis (the attempt to identify basic elements in narrative writing and specific objectives for improvement), (2) discrimination programming (Smith, 1967), a strategy for designing instructional materials directly related to the task analysis, (3) the teaching of a process-approach, by which the student is taught a sequence of steps for (a) selecting an appropriate subject, (b) developing it in a rough draft, and (c) revising and expanding it, and (4) the use of a feedback system, by which the student could provide himself with positive information on his improvement.

The first step in developing the measurement instrument was a rough task-analysis of narrative writing. The task-analysis defined a narrative as a discourse that answered basic questions: What was it about? What happened? Why did it happen? When did it happen? Where did it happen? Who did it happen to? Who else was involved? The task analysis further identified the basic writing responses: a student would write to provide appropriate answers to those basic questions.

The difficult problem was to specify what "appropriate answers" were or, put another way, what desirable changes in answering the questions would be. Basic goals were identified for improvement in narrative writing, based on the work of Moffett (1968). Two goals were identified: control of structure, accomplished simultaneously with expansion. Simply put, the student would learn to expand his narratives, by writing more words for the sake of completeness, development, and interest, without sacrificing control of unity and order.

The next step was to define the qualities of control of structure and expansion. For the former, three factors were identified: (1) unity (the narrative would be about one incident that occurred within twenty-four hours); (2) consistency of point of view (since the narrative was autobiographical it would be "told" in the first-person); and (3) chronological order (events would be narrated in the order in which they happened). Expansion was "broken down" into two factors: (1) "Completeness" (there would be an increase in the number of questions answered to some extent), and (2) "Development" (there would be an increase in number of words that answered each of the seven questions). In addition, expansion was measured in an easier way, by an increase in total number of words. (It was found that the increase in number of words had a high correlation with increases in "completeness" and "development".)

The last step was to write a detailed set of instructions for judges who measured the narratives, one which completely and precisely defined the factors noted above. Judges were trained in using the instrument with sample narratives. The instrument served as the clearest statement of the objectives of the instruction, i.e., it defined in measurable terms the desired positive changes. Though time-consuming and complex, the instrument was found to have a high degree of reliability.

The Use of the Instrument as a Feedback System.

The self-instructional program was found to have statistically significant changes when pre and post-test narratives were compared. Variables, however, were not controlled. The second investigator (Wolter, 1975) decided to continue the work on instruction in narrative

writing but to limit the study to, and provide thorough control for, one variable: task-related feedback. Four groups of students wrote narratives, following the same instructions (which were based upon the task-analysis).

The effects of four conditions of feedback were studied. One group received positive, quantitative feedback from the teacher on a form, i.e., number of words written, number of questions answered. A second group received corrective feedback by means of written comments from the teacher, based on the form, i.e., specific recommendations for improving the narrative by adding particular details, answering particular questions, or writing more words. A third group provided themselves with positive, quantitative feedback by recording information about their narratives on the feedback form. The fourth group received no feedback of any kind.

To insure that the content of the feedback was the same for the three groups, was task-related, and was provided in concrete, objective terms, the investigator hit upon the idea of using the measurement system, in a simplified form, and of training both the students and teachers in the use of the instrument. Thus, the instrument, originally designed solely for research, had become an instructional procedure. The feedback form is presented in Figure 1.

The investigator found that any manner of providing task-related feedback was more effective than no feedback at all: the groups receiving feedback demonstrated statistically significant changes. Task-related feedback was not compared with non-task-related feedback (i.e., information on aspects of performance not directly related to

the basic elements of the task; in this case, spelling, punctuation, significance of the subject). However, the implications of the study are that information directly related to the task, in itself, has a positive instructional effect. It should be noted that the students received no other instruction; e.g., lectures on narrative writing, discussions of well-written narratives, reading of well-written narratives. It should also be noted that the group who provided themselves with positive feedback may have achieved more, in some respects, than the two groups who (a) received positive quantitative feedback from teachers or (b) corrective feedback from teachers. All students in the first group showed positive changes, whereas in the other groups, some did not, and the students in the first group were observed to spend more time working on and reading over their writing than the others.

Implications.

Researchers expend much time and energy in deciding upon variables to measure, developing measurement instruments, and testing their validity and reliability. The value of this labor, since it is done as a means to an end, may be often overlooked, especially by classroom teachers. Meanwhile, teachers expend much time and work trying out different, often elaborate procedures and materials to improve instruction and expend, at least in teaching writing, much time and energy in writing responses to students' performances. In spite of that labor, researchers and teachers of writing have been discouraged about the possibilities of improving instruction in writing. One answer, one that seems in hindsight terribly simple and common-sensical, may be:

to give students the opportunity to measure their own work, by providing themselves with feedback that is directly related to the tasks they are working on. The researcher can be of great assistance in helping the teacher identify the kind of feedback most beneficial to the students.

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Check your story now.

A. How many words? ☐ Box A

B. See how well your story answers these questions. Put the points for each question in the box.

1. What was it about?
   a) Did you tell about one experience? Then give 2 pts. ☐
   b) Did it happen in one day or less? Then give 1 pt. ☐
   c) Did it happen to you, OR to you and someone else? Then give 2 pts. ☐

   Add the boxes ☐ → ☐ Box 1

2. What happened?
   Give 1 pt for each thing that happened. Stop counting if you get 10. ☐ Box 2

3. Why did it happen?
   Reasons or causes that tell why are often signalled by words like since, because, so. Give 1 pt. each time you use these words. (Stop at 5 pts.) ☐ Box 3

4. Who did it happen to?
   Each piece of information about the main person like name, age, appearance, relationship with others. Gets 1 pt. (stop if you get 5 pts.) ☐ Box 4

5. Who else was involved?
   Each piece of information that tells the person's relationship to the main person, or tells of an action done by that person. Gets 1 pt. (stop at 2 pts.) ☐ Box 5

6. When did it happen?
   a) Time words like morning, night, day, evening, 10 o'clock, 5 minutes, get 1 pt. each. ☐
   b) Also time signal words like when, after, later, before, soon, get 1 pt. each ☐

   Add the boxes (stop at 5 pts.) ☐ → ☐ Box 6

7. Where did it happen?
   Give 1 point for each detail about the place where the story happened. Stop at 5 points. ☐ Box 7

NOW ADD POINTS IN BOXES 1 TO 7 TOTAL ☐ Box 8

Now put your score from Box A. on the Graph A.

Then put your score from Box B. on Graph B.

Figure 1

Feedback form used by teachers and students to provide task-related feedback on narrative writing.